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09/608,406	06/30/2000	William A. Thompson	Thompson 6	9899

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Docket Administrator (Rm 3C-512)
Lucent Technologies Inc
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EXAMINER

PHAN, HANH

ART UNIT PAPER NUMBER

2633

DATE MAILED: 06/05/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

58

Office Action Summary

Application No.

09/608,406

Applicant(s)

THOMPSON, WILLIAM A.

Examiner

Hanh Phan

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

-The abstract exceeds 150 words in length.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature "**wherein said intermediate node includes optical add/drop terminals**" specified in claims 11 and 20, and the feature "**wherein said intermediate node includes co-located end terminals**" specified in claims 10 and 19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 10-13, and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakamoto et al (US Patent No. 6,490,064).

Regarding claim 1, referring to figures 16 and 18, Sakamoto discloses a system for bi-directional transmission of optical signals over a single optical medium (i.e., optical fiber transmission path 224) coupled between at least two nodes (i.e., optical transmission and reception apparatus 212 and 213, see Fig. 16), said system utilizing a first optical transmission band for signals traveling in a first direction (i.e., transmitters 220 of optical transmission and reception apparatus 212 generate optical signals of different wavelengths and a multiplexer 221 which wavelength multiplexes optical signals to provide a first optical transmission band for signals traveling in a first direction to receivers 223 of optical transmission and reception apparatus 213, see Figs. 16 and 18) and a second optical transmission band for signals traveling in a second direction (i.e., transmitters 220 of optical transmission and reception apparatus 213 generate optical signals of different wavelengths and a multiplexer 221 which wavelength

Art Unit: 2633

multiplexes optical signals to provide a second optical transmission band for signals traveling in a second direction to receivers 223 of optical transmission and reception apparatus 212, see Figs. 16 and 18), said system comprising:

at least a first combiner/separator unit at a first of said two nodes (i.e., a first filter or circulator 225 at the optical transmission and reception apparatus 212, see Figs. 16 and 18), said first combiner/separator including an input port, an output port and a bi-directional input/output port for coupling to said single optical medium (i.e., filter 225 including an input port from multiplexer 221 to filter 225, an output port from filter 225 to demultiplexer 222, and a bi-directional input/output port from filter 225 for coupling to the single optical medium 224, see Figs. 16 and 18), a first optical filter within said first combiner/separator unit coupled to each of said ports therein, said optical filter being substantially transmissive to optical signals of said first band entering said input port and exiting on said bi-directional input/output port and said filter being substantially reflective for signals of said second band entering said bi-directional input/output port and exiting on said output port (inherently, filter 225 as described above being substantially transmissive to optical signals of the first band entering the input port and exiting on the bi-directional input/output port and the filter 225 being substantially reflective for signals of the second band entering the bi-directional input/output port and exiting on the output port, see Figs. 16 and 18, col. 13, lines 16-39 and lines 58-64); and

at least a second combiner/separator unit at a second of said two nodes (i.e., similarly as described above, a second filter or circulator 225 at the optical transmission and reception apparatus 213, see Figs. 16 and 18), said second combiner/separator

Art Unit: 2633

(i.e., filter 225) including an input port, an output port and a bi-directional input/output port coupled to said optical medium (i.e., optical fiber transmission 224), a second optical filter within said second combiner/separator unit (i.e., filter 225) coupled to each of said ports therein of said second combiner /separator unit, said second optical filter (i.e., filter 225) being substantially transmissive to optical signals of said second band entering said input port and exiting on said bi-directional input/output port and said filter being substantially reflective for signals of said first band entering said bi-directional input output port and exiting on said single direction output port (see Figs. 16 and 18). /

Regarding claims 2, 12, 13, and 21, referring to figure 18, Sakamoto further teaches at least one intermediate node (i.e., one repeater node including elements 225, 280, 281, 225 coupled between the first and second end node), said intermediate node comprising:

at least one said first combiner/separator unit (i.e., a first filter 225) and at least one second combiner/separator unit (i.e., a second filter 225)(Fig. 18), and

at least a first and second optical amplifier (280, 281)(Fig. 18), said output port of said first combiner/separator unit (i.e., first filter 225) coupled to said input port of said second combiner/separator unit (i.e., second filter 225) through said first optical amplifier (280), said output port of said second combiner/separator unit (i.e., second filter 225) coupled to said input port of said first combiner/separator unit (i.e., first filter 225) through said second optical amplifier (281)(see Fig. 18);

said first and second combiner/separator units (i.e., first and second filters 225) being alternately coupled within said bi-directional transmission system such that pairs

Art Unit: 2633

of said first and second combiner/separator units are utilized in combination, said bi-directional ports of said combiner/separator units being coupled to one another (see Fig. 18, col. 13, lines 58-64).

Regarding claims 10 and 19, Sakamo further teaches the intermediate node includes co-located end terminals (see Figs. 6 and 7, col. 7, 16-67, and col. 8, lines 1-12).

Regarding claims 11 and 20, referring to figures 6 and 7, Sakamo further teaches the intermediate node includes optical add/drop terminals (col. 7, lines 10-14 and col. 8, lines 1-12).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al (US Patent No. 6,490,064) in view of Kakui (US Patent No. 6,549,315).

Regarding claims 3, 18, and 22, Sakamoto discloses all the aspects of the claimed invention as set forth in the rejection to claim 1 above, except fails to teach the optical transmission bands are L band and C-band. However, Kakui teaches an optical transmission system wherein the optical transmission bands are L band and C-band (see Figs. 1 and 2, col. 4, lines 65-67, and col. 5, lines 1-14). Therefore, it would have

Art Unit: 2633

been obvious to one having skill in the art at the time the invention was made to use the optical transmission bands are L band and C-band as taught by Kakui in the system of Sakamoto. One of ordinary skill in the art would have been motivated to do this since Kakui suggests in column 1, lines 16-39 that using such optical transmission bands such as L band and C-band would minimize the transmission loss of optical fibers used as optical transmission line in the vicinity of a wavelength band as C-band and L-band and allow a plurality of optical wavelength signals transmitted in a wide band with high speed and large capacity.

7. Claims 4-7, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al (US Patent No. 6,490,064) in view of Alexander et al (US Patent No. 6,233,077).

Regarding claims 4, 6, and 14, Sakamoto discloses all the aspects of the claimed invention as set forth in the rejection to claim 1 above, except fails to teach a first set of one or more optical translator units for translating received wavelengths to wavelengths of said first transmission band, said optical translator units being coupled to an optical multiplexer unit and an optical demultiplexer unit coupled to a second set of optical translator units for translating wavelengths of said second transmission band to said received wavelengths. However, Alexander teaches a first set of one or more optical translator units (i.e., optical remodulators 30)(Fig. 1) for translating received wavelengths to wavelengths of said first transmission band, and these optical translator units (optical remodulators 30) being coupled to an optical multiplexer unit (i.e., optical

Art Unit: 2633

combiner 50)(Fig. 1) and an optical demultiplexer unit (i.e., optical splitter 90)(Fig. 1) coupled to a second set of optical translator units (i.e., remodulating selectors 100)(Fig. 1) for translating wavelengths of said transmission band to said received wavelengths (col. 4, lines 7-52, col. 7, lines 60-67, and col. 8, lines 1-39). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to add a optical translator unit at the output stage of each transmitter and add a optical translator unit at the outputs from the optical demultiplexer in the system of Sakamo as taught by Alexander. One of ordinary skill in the art would have been motivated to do this since Alexander suggests in column 4, lines 7-27 that using such optical translator units would allow the wavelengths emitted by the optical translator units are selected to be within the 1500 nanometer range, the range in which the minimum signal attenuation occurs for silica-based fibers.

Regarding claims 5, 7, and 15, Sakamo further teaches the first node further includes at least one optical amplifier (280) coupled between an output of said multiplexer (221) and said input port of said first combiner/separator unit (i.e., filter 225) and at least one optical amplifier (281) coupled between said output port of said first combiner/separator unit (i.e., filter 225) and an input of said demultiplexer (222)(see Fig. 18).

8. Claims 8, 9, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al (US Patent No. 6,490,064) in view of Alexander et al (US Patent No. 6,281,997).

Art Unit: 2633

Regarding claims 8, 9, 16, and 17, Sakamoto discloses all the aspects of the claimed invention as set forth in the rejection to claim 1 above, except fails to teach the filters are thin film wide-band filters (for claims 8 and 16) and the filters include a transmissive insertion loss in the range of 1.3 to 1.7 dB and reflective insertion loss in the range of 0.3 to 0.9 dB (for claims 9 and 17). However, Alexander in US Patent No. 6,281,997 teaches the filters (220)(Fig. 2) are thin film wide-band filters and the filters include a transmissive insertion loss in the range of 1.3 to 1.7 dB and reflective insertion loss in the range of 0.3 to 0.9 dB (col. 3, lines 48-67 and col. 5, lines 14-22). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to use the thin film wide-band filters to modify the filters in the combiner/separator of the system of Sakamo as taught by Alexander. One of ordinary skill in the art would have been motivated to do this since Alexander suggests in column 5, lines 14-22 that using such thin film wide-band filters would introduce little power loss to the selected sub-groups of channels. For example, the power loss associated with the channels reflected by the thin film filters is about 0.5 dB and the loss associated with the channels transmitted through the filter is about 0.7 dB.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baker et al (US Patent No. 5,452,124) discloses bi-directional transmission using wavelength division multiplexing.

Art Unit: 2633

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

A handwritten signature in cursive script, appearing to read 'Hanh Phan', is written over a horizontal line.

Hanh Phan

05/30/2003